Chapter 9: Intelligence and Psychological Testing
Principle Types of Psychological Tests

• Mental ability tests
  – Intelligence – general
  – Aptitude – specific

• Personality scales
  – Measure motives, interests, values, and attitudes
Key Concepts in Psychological Testing

• **Standardization**
  – Test norms
  – Standardization group

• **Reliability**
  – Correlation coefficient

• **Validity**
  – Content validity
  – Criterion-related validity
  – Construct validity
Figure 9.2  Test-retest reliability
Figure 9.3  Correlation and reliability
Figure 9.4 Criterion-related validity
Figure 9.5 Construct validity
The Evolution of Intelligence Testing

• Sir Francis Galton (1869)
  – *Hereditary Genius*

• Alfred Binet and Theodore Simon (1905)
  – Binet-Simon Intelligence Scale
  – Mental age

• Lewis Terman (1916)
  – Stanford-Binet Intelligence Scale
  – Intelligence Quotient (IQ) = MA/CA x 100

• David Wechsler (1955)
  – Wechsler Adult Intelligence Scale
Figure 9.7 The normal distribution
Reliability and Validity of IQ tests

• Exceptionally reliable – correlations into the .90s

• Qualified validity – valid indicators of academic/verbal intelligence, not intelligence in a truly general sense
  – Correlations:
  – .40s–.50s with school success
  – .60s–.80s with number of years in school

• Predictive of occupational attainment, debate about predictiveness of performance
Extremes of Intelligence: Mental Retardation

• Diagnosis based on **IQ and adaptive testing**
  – IQ 2 or more SD below mean
  – Adaptive skill deficits
  – Origination before age 18

• 4 levels: mild, moderate, severe, profound
  – Mild most common by far

• Causes:
  – Environmental vs. biological
Figure 9.10 The prevalence and severity of mental retardation
Figure 9.11  Social class and mental retardation
Extremes of Intelligence: Giftedness

• **Identification issues** – ideals vs. practice
  – IQ 2 SD above mean standard
  – Creativity, leadership, special talent?

• **Stereotypes** – weak, socially inept, emotionally troubled
  – Lewis Terman (1925) – largely contradicted stereotypes
  – Ellen Winner (1997) – moderately vs. profoundly gifted
Extremes of Intelligence: Giftedness

- **Giftedness and high achievement** – beyond IQ
  - Renzulli (2002) – intersection of three factors
  - Simonton (2001) – drudge theory and inborn talent
Intelligence: Heredity or Environment?

- **Heredity**
  - Family and twin studies
  - Heritability estimates

- **Environment**
  - Adoption studies
  - Cumulative deprivation hypothesis
  - The Flynn effect

- **Interaction**
  - The concept of the reaction range
Figure 9.13  Studies of IQ similarity
Figure 9.14  The concept of heritability
Figure 9.16 Reaction range
Cultural Differences in IQ

- **Heritability** as an Explanation
  - Aurthur Jensen (1969)
  - Herrnstein and Murray (1994) – *The Bell Curve*

- **Environment** as an Explanation
  - Kamin’s cornfield analogy – socioeconomic disadvantage
  - Steele (1997) - stereotype vulnerability
Figure 9.17 Genetics and between-group differences on a trait
New Directions in the Study of Intelligence

• Biological Indexes and Correlates of Intelligence
  – Reaction time and inspection time
  – Brain size

• Cognitive Conceptualizations of Intelligence
  – Sternberg’s triarchic theory and successful intelligence

• Expanding the Concept of Intelligence
  – Gardner’s multiple intelligences
  – Goleman’s emotional intelligence
Figure 9.20  Sternberg’s triarchic theory of intelligence
Figure 9.24 Estimated prevalence of psychological disorders among people who achieved creative eminence.